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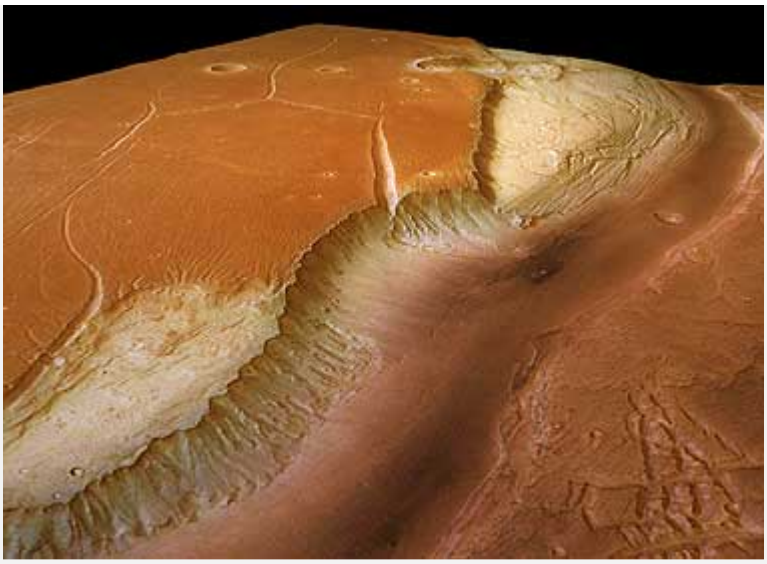
Kasei Valles outflow channel system

30 August 2006



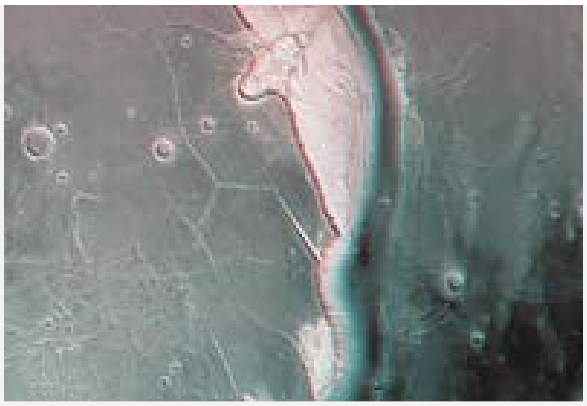
Kasei Valles, perspective view of Northern branch, looking West

Kasei Valles, perspective view of Northern branch, looking East

Kasei Valles, colour view of Northern branch

Kasei Valles, black and white view of Northern branch

These images, taken by the DLR-operated High Resolution Stereo Camera (HRSC) on board ESA's Mars Express spacecraft, show the region of Kasei Valles, one of the biggest outflow channel systems on Mars. *Kasei* is the Japanese word for the planet Mars.



Kasei Valles, 3D anaglyph showing Northern branch

The HRSC obtained these images during orbit 1429 at a ground resolution of approximately 29 metres per pixel.

There are two sets of images in this release, one showing the North branch, one showing the south branch. Both branches extend approximately south-west to North-east, and the images have been rotated one-quarter clockwise so that North is to the right.

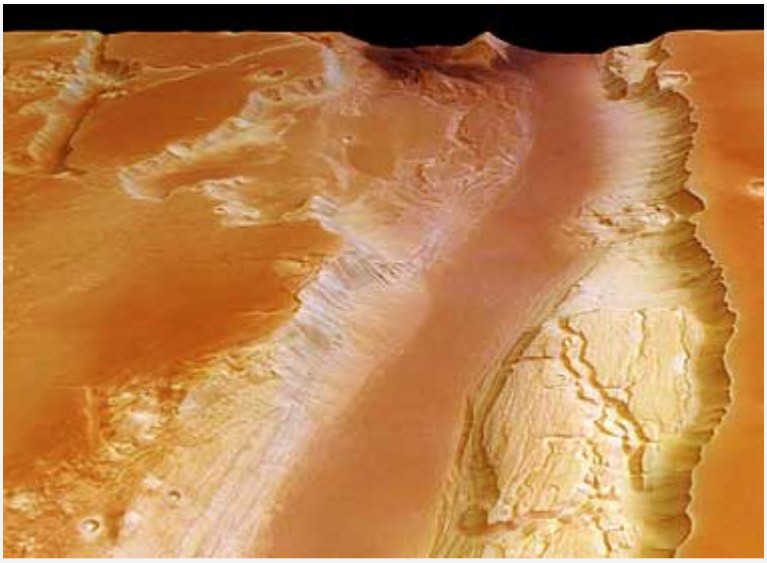
The Kasei Valles region lies approximately between 21° and 28° North at 292.5° East. Connecting the southern Echus Chasma and the plain Chryse Planitia in the east, Kasei Valles has a width of roughly 500 kilometres and, if Echus Chasma is included, extends for approximately 2500 kilometres.

Both valley branches exhibit a depth of 2900 metres.

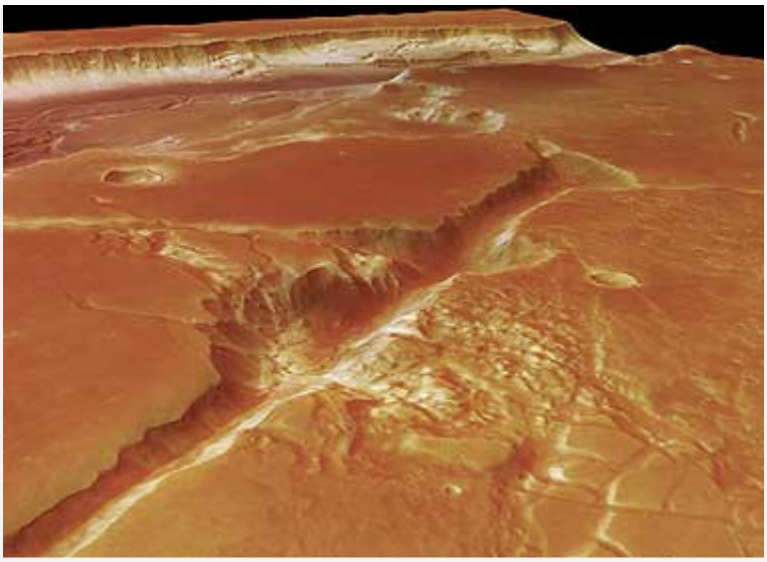
As one of the biggest outflow channel systems on Mars, Kasei Valles was probably formed by gigantic flood events and later additionally shaped by glacial activity.

In the first set of images, the Northern branch of Kasei Valles and the plain Sacra Mensa can be seen. An oval structure at the western edge of the scene is interpreted to be a crater caused by an oblique meteorite impact.

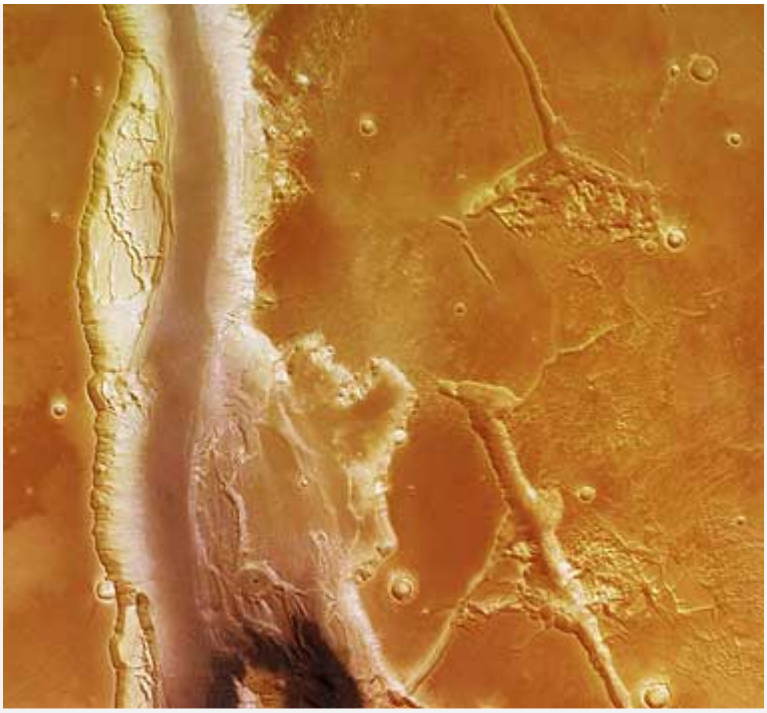
The Southern branch of Kasei Valles and Sacra Mensa, with its 1- to 2-kilometre-deep graben system, Sacra Fossae, is shown in the second set of images. The terraces are up to 30 kilometres wide, located at the base of the walls on both sides of the valley branch.



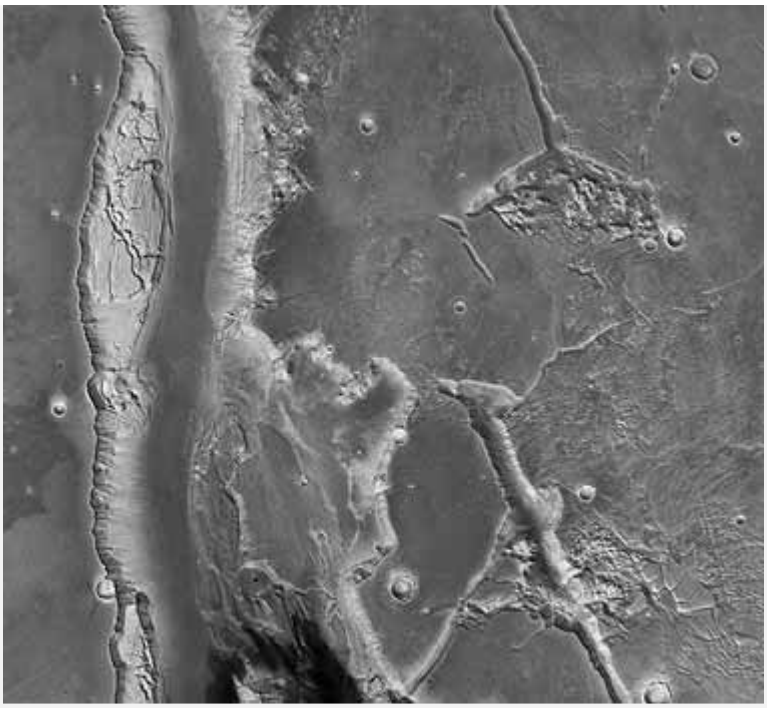
Kasei Valles, perspective view of Southern branch, looking East



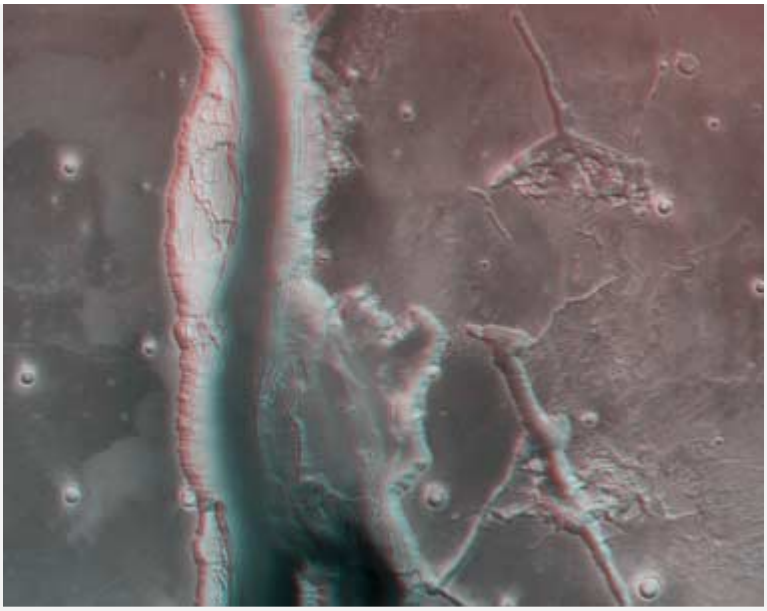
Kasei Valles, perspective view of Southern branch, looking South-West



Kasei Valles, colour view of Southern branch

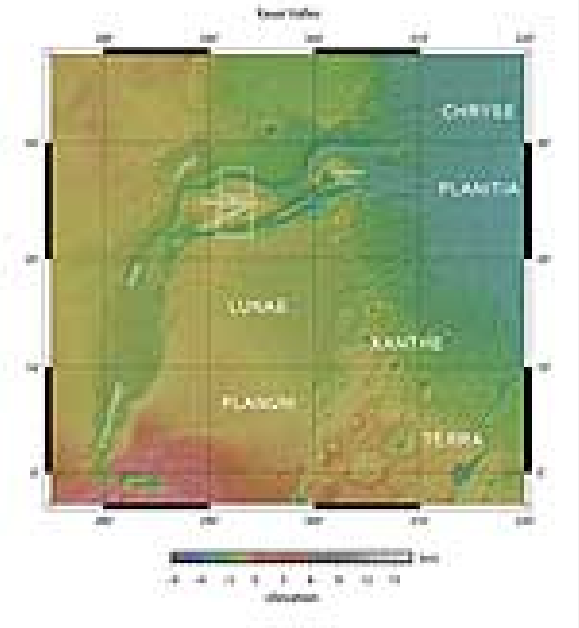


Kasei Valles, black and white view of Southern branch



Kasei Valles, 3D anaglyph showing Southern branch

It is interesting to note that the valley was also the landing site of both Viking 1 and Mars Pathfinder. A little over 30 years ago, on 20 July 1976, Viking 1 was the first complex lander to touch down on our neighbouring planet. Later, on 3 September 1976, Viking 1's sister probe, Viking 2, landed. Although the Viking probes were scheduled only for a 90-day mission only, they transmitted images and data to Earth for six years.



Kasei Valles, context map

The colour scene was derived from three HRSC colour channels and the nadir channel. The perspective views have been derived from stereo and nadir channels. The anaglyph image was calculated from the nadir and one stereo channel. Image resolution has been decreased for use on the internet.

The High Resolution Stereo Camera (HRSC) experiment on ESA's Mars Express mission is led by the Principal Investigator (PI) Prof. Dr Gerhard Neukum, who also designed the camera technically. The science team of the experiment consists of 45 co-investigators from 32 institutions and 10 nations.

The camera was developed at the German Aerospace Center (DLR) under the leadership of the PI, G. Neukum, and built in cooperation with industrial partners (EADS Astrium, Lewicki Microelectronic GmbH and Jena-Optronik GmbH).

The experiment on Mars Express is operated by the DLR Institute of Planetary Research, through ESA/ ESOC. The systematic processing of the HRSC image data is carried out at DLR. The scenes shown here were processed by the PI Group at the Institute for Geosciences of the Freien Universität Berlin (Free University Berlin) in cooperation with DLR's Institute of Planetary Research, Berlin.

Contact

Prof.Dr. Ralf Jaumann
German Aerospace Center
Institute of Planetary Research, Planetary Geology
Tel: +49 30 67055-400
Fax: +49 30 67055-402
E-Mail: Ralf.Jaumann@dlr.de

Elke Heinemann
German Aerospace Center (DLR)
Corporate Communications, Online Communication - DLR Web Portal
Tel: +49 2203 601-2867
Fax: +49 2203 601-3249
E-Mail: elke.heinemann@dlr.de

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